IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Transmitted herewith for filing is the patent application of inventors:

Ingo B. Joedicke

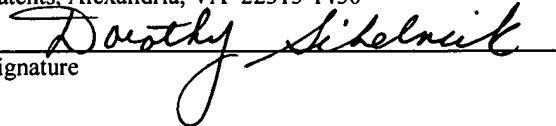For: **IMPROVED ROOFING GRANULES**

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT
PURSUANT TO 37 CFR 1.97 and 1.98

Dear Sir:

In accordance with the suggested procedure of 37 CFR 1.97 and 1.98, Applicant is submitting herewith copies of all of the prior art references identified on the enclosed list, which are considered to comprise the closest prior art of which the undersigned attorney, the inventor and anyone else believed to have been substantially involved in the preparation of this application are aware. Each of these references will be discussed below in a brief paragraph.

1. U.S. Patent No. 2,732,311, issued to G. Hartwright. on January 24, 1986, relates to a coating process of producing radiation-reflective roofing granules. The process comprises the steps of:

> coating mineral granules with a mixture of clay and an alkali silicate;
> partially drying the coating thus produced to render it tacky;
> covering the coating with minute radiation-reflecting metallic flakes; and
> heating the covered granules to a temperature just below the melting point of the metallic flakes, whereby bonding them to the granules.

The metallic flakes can be aluminum flakes, copper flakes, bronze flakes, and bronze powder.

2.   U.S. Patent No. 3,894,877, issued to Nelson on July 15, 1975, discloses incorporating copper silicate into color coated roofing granules using a heavy processing oil. The copper silicate adheres to the surface of the granule color coating, with the finer particles thereof being adsorbed into the color coat with the processing oil.

3.   U.S. Patent No. 4,092,441, issued to Meyer et al. on May 30, 1978, discloses roofing granule treatment by coating with a metallic algaecide.

Metal algaecides, such as zinc, copper, nickel and mixtures thereof are sprayed in the form of molten droplets onto the surface of roofing granules or onto the surface of asphalt roofing.

4.   U.S. Patent No. 4,378,403, issued to I. Joedicke on March 29, 1983, discloses roofing granules coated with insolubilized reaction product of a coating composition comprising water, kaolin clay, sodium silicate, pigment and gas-forming compounds. The gas-forming compounds include hydrogen peroxide, alkali metal perborates, alkali metal persulfates, alkali metal borohydrides, and alkali metal azides.

The gas-forming compounds are used to enhance the opacity of the coating, i.e. to create light scattering closed voids.

The patent also discloses methods used by the prior art to reduce the amount of pigments in a coating or to reduce the appearance of staining/discoloration in the raw material used to produce the coating. Such methods include: the use of glass or plastic spheres; addition of polymer films containing UV light-curable components that shrink during curing; and evaporation of droplets of a volatile liquid from the coating. All of these methods are intended to enhance the opacity of the coating.

As opposed to these methods and the inclusion of gas-forming compounds incorporated in the coating, the present invention is directed to enhancing the algaecidal performance of the roofing granules in a coating.

5.   U.S. Patent No. 5,356,664, issued to Narayan et al. on October 18, 1994, is directed to a method of inhibiting algae growth on an asphalt shingle surface using a blend of copper-containing algae-resistant and non-algae-resistant granules.

6.   U.S. Patent No. 5,411,803, issued to George et al. on May 2, 1995, relates to three-layer coated ceramic granules. The ceramic granules comprise the reaction product of an alkali metal silicate and aluminosilicate. The ceramic coating further includes a borate compound and zinc oxide.

7.   U.S. Patent No. 6,214,466, issued to Joedicke on April 10, 2001, discloses algae-resistant roofing granules coated with: a first coat consisting of a fired silicate-clay matrix containing cuprous oxide and zinc sulfide to provide a slow, long-term bimetallic copper and zinc ions release, and a second coat consisting of a fired silicate-clay matrix containing a pigment.

None of the references disclose or suggest the present invention.

Respectfully submitted,

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William J. Davis, Attorney for Applicant
Reg. No. 30,744

Address:
INTERNATIONAL SPECIALTY PRODUCTS
1361 Alps Road
Wayne, NJ 07470
Tele: (973) 628-3529
Facsimile: (973) 628-3620

Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	ATTY. DOCKET NO. DN 2786(CIP)		SERIAL NO.
INFORMATION DISCLOSURE STATEMENT **BY APPLICANT** *(Use several sheets if necessary)*		APPLICANT Ingo B. Joedicke		
		FILING DATE	GROUP	

U.S. PATENT DOCUMENTS

·Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
		2,732,311	01/24/56	G. Hartwright			
		3,894,877	07/15/75	Nelson			
		4,092,441	05/30/78	Meyer et al.			
		4,378,403	03/29/83	I. Joedicke			
		5,356,664	10/18/94	Narayan et al.			
		5,411,803	05/02/95	George et al.			
		6,214,466	04/10/01	I. Joedicke			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes	No

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

·EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.